King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

STAT319: PROBABILITY & STATISTICS FOR ENGINEERS & SCIENTISTS
Fall Semester (Term 121): 1 September to 13 January, 2013

Instructor: Raid Anabosi **Coordinator:** Anwar Joarder
Office: 5-416 **Phone:** 1851
Email: anabosir@kfupm.edu.sa
Office Hours: or by appointment.

Text: Miller & Freund's Probability and Statistics for Engineers by Johnson, R. A., Freund, J. and Miller, I. (2011) 8th Ed, Boston, Pearson-Prentice Hall.

Software Package: The Student Edition of ***STATISTICA*** with a Lab Manual. A Lab syllabus is available with your lab instructor.

Course Objectives: Introduce the basic concepts of probability and statistics to engineering students. Emphasis will be given on the understanding of the nature of randomness of real world phenomena, the formulation of statistical methods by using intuitive arguments, solving them and thereby making meaningful decisions.

Assessment:

Activity	Weight
Attendance and Class Responses (3), Homework (4), Quizzes(8)	*15%*
Lab Work (see Lab syllabus)	*25%*
First Major Exam (Chapters 3-4): 1800 to 1930 pm, Tuesday, 25th September	*15%*
Second Major Exam (Chapters 5-6): 1800 to 1930 pm, Tuesday, 16th October	*15%*
Final Exam (Comprehensive): 0730 to 1000 am, Saturday, 5th January, 2013	*30%*

Usually once a chapter is finished, you expect a quiz on the material. Home Works will be assigned through Blackboard in synchrony with the lectures.

You need to achieve at least 50% in order to pass the course.

Students are required to carry a scientific calculator with stat functions to every lecture, lab and in the exam with them. Calculators cannot be shared between students in quizzes or exams. Mobile phones or other communication devices will be strictly prohibited to use.

Important Notes:

- ✓ In accordance with University rules, ***20% or 3 (three) unexcused absences*** will automatically result in a grade of ***DN***.
- ✓ ***Attendance*** on time is ***very*** important. Mostly, attendance will be checked within the ***first five minutes*** of the class. Entering the class after that, is considered as one late, and ***every two times late*** equals to one absence.

Home Work Problems:

- ➢ Problems to be discussed will be posted on the WebCT or in the instructor home page. Students are expected to solve as many problems.

Syllabus

WEEK	Topic (or assigned readings)	Reminders
WEEK 1 01-05 SEP	**Ch 3. Probability** 3.1 - 3.2 Sample space and events and Counting 3.3 Probability 3.4 The Axioms of probability 3.5 Some elementary theorems	4 September: Last day for late registration; Last day for adding courses.
WEEK2 08-12 SEP	3.6 Conditional probability 3.7 Bayes' Theorem **Ch 4. Discrete Probability Distributions** 4.1 Random variables 4.2 Binomial distribution	12 September: Last day for dropping course(s) without record
WEEK 3 15-19 SEP	4.3 Hypergeometric distribution (Emphasize probability of an outcome) 4.6 The mean, median, the variance of a distribution and cumulative distribution function 4.7 – 4.8 Poisson and geometric distributions.	
WEEK 4 22-26 SEP	**Ch 5. Probability Densities** 5.1 Continuous random variables (includes mean, median, percentile, variance and cumulative distribution function)	Sunday, 23 September: National Holiday; **Major Exam I: Tuesday, 25 th September**
WEEK 5 29 SEP- 03 OCT	5.4 – 5.9 Uniform, Exponential (Emphasize), Weibull, lognormal, etc. 5.2 The normal distribution 5.3 The normal approximation to the binomial	
WEEK 6 6-10 OCT	**Ch 6. Sampling distributions** 6.1 Populations and samples 6.2 – 6.3 Sampling distribution of the mean	Midterm Grade Reports due in the Deanship
WEEK 7 13-17 OCT	6.4 Sampling distribution of variance	10 Oct: Last day for Dropping **courses** with "W" online **Major Exam II: Tuesday, 16 th October**
Eid Al-Adha Vacction Thursday, 18th October to Friday, 2nd November		
WEEK 8 3-7 NOV	**Ch 7. Inferences Concerning Means** 7.1 – 7.2 Point and interval estimation concerning mean 7.4 Testing hypotheses concerning mean	
WEEK 9 10 – 14 NOV	7.4 - 7.6 Testing hypotheses concerning one mean 7.7 Relation between testing hypotheses and confidence intervals	

WEEK 10 17 -21 NOV	Ch 8. Inferences Concerning Means 8.1-8.4 Inference concerning two population means	21 November: Last day for withdrawal from **all courses** with grade of "W" thru URO
WEEK 11 24 – 28 NOV	Ch 10. Inferences Concerning Proportions 10.1 -10.2 Estimation and hypotheses concerning one proportion, p-value	Beginning of early registration for the second semester; Beginning of registration for Coop
WEEK 12 01 -05 DEC	11. Regression Analysis 11.1 The method of least square	
WEEK 13 08-12 DEC	11.2 Inference based on least square estimators, Analysis of variance	
WEEK 14 15-19 DEC	11.6 Correlation, Exact and Approximate Test on slope/ correlation	19 December: Last day for withdrawal from **all courses** with "WP/WF" thru the URO
WEEK 15 22-26 DEC	Review	
WEEK 16 29 DEC	Review	Normal Sunday Class (Last day of the classes)

13 January, 2013: Last Day of Submission of Grades